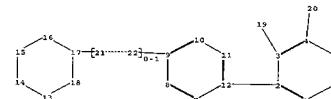


up date



chain nodes :

19 20 21 22

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
2-12 3-19 4-20 9-22 17-21 21-22
15-16 16-17 17-18

exact/norm bonds :

13-14 13-18 14-15 15-16 16-17 17-18 21-22

exact bonds :

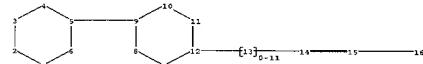
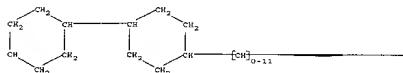
2-12 3-19 4-20 9-22 17-21

normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom
12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:CLASS 20:CLASS 21:CLASS
22:CLASS



chain nodes :

13 14 15 16

ring nodes :

1 2 3
in bonds

chain bonds : 5-9 12-13 13-14 14-15 15-16

g bonds :

1-2 1-6
exact/norm_h

ct/norm b
1-2 1-6

exact bonds: 1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12

5-9 12-13 13-14 14-15 15-16

such level:

Match Level
1:Atom

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom
12:Atom 13:CLASS 14:CLASS 15:CLASS 16:CLASS

=> s 16
L7 2 L6

=> dis 1-2 all hitstr

L7 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2003 ACS on STN
AN 2003:114235 CAPLUS
DN 138:178319
ED Entered STN: 14 Feb 2003
TI Liquid crystal mixture suitable for active matrix liquid crystal display
of ECB- or VA-type
IN Reiffenrath, Volker; Klasen-Memmer, Melanie; Rillich, Malgorzata
PA Merck Patent GmbH, Germany
SO Ger. Offen., 26 pp.
CODEN: GWXXBX
DT Patent
LA German
IC ICM C09K019-12
ICS C07C043-225; C07C069-75; C07C069-76; C07C025-18; C07C013-28;
C07D521-00; C09K019-34; C09K019-44; G09F009-35; G02F001-137
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reproductive Processes)
Section cross-reference(s): 75

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10229828	A1	20030213	DE 2002-10229828	20020703
	US 2003071244	A1	20030417	US 2002-206978	20020730
	JP 2003119466	A2	20030423	JP 2002-222518	20020731
PRAI	DE 2001-10137319	A1	20010731		
OS	MARPAT	138:178319			
GI					

later than 4/30, file effects

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The invention relates to a liq. crystal mixt. based on polar compds. with neg. dielec. anisotropy, wherein the mixt. comprises 10-45 % of I (R11 = C1-12-alkyl, C2-12-alkenyl; R12 = C2-12-alkenyl), 30-85 % of II (R21, R22 = C1-12-alkyl, alkenyl; Z21 = -COO-, single bond; A21 = trans-1,4-cyclohexylene, 1,4-phenylene), and 5-35 % of III (R31, R32 = C1-12-alkyl, alkenyl; m = 1, 2; A = 1,4-trans-cyclohexylene, 1,4-phenylene). The liq. crystal mixt. is suitable for used in active matrix liq. crystal displays of ECB (elec. controlled birefringence) or VA (vertically aligned) type.

ST liq crystal mixt active matrix display VA ECB

IT Liquid crystal displays
(liq. crystal mixt. suitable for active matrix liq. crystal display of ECB- or VA-type)

IT Liquid crystals
(nematic; liq. crystal mixt. suitable for active matrix liq. crystal display of ECB- or VA-type)

IT 84540-37-4 85600-56-2 92263-41-7 117713-14-1 123560-48-5
124728-81-0 124729-02-8 129738-34-7 155041-85-3 174350-06-2
189750-98-9 208709-55-1 263017-37-4 279246-65-0 323178-01-4
478385-88-5 497172-21-1 497172-22-2
497172-23-3

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(liq. crystal mixt. suitable for active matrix liq. crystal display of ECB- or VA-type)

IT 497172-21-1 497172-22-2 497172-23-3

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(liq. crystal mixt. suitable for active matrix liq. crystal display of ECB- or VA-type)

RN 497172-21-1 CAPLUS

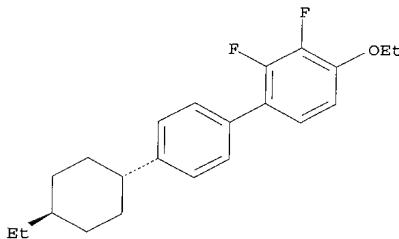
CN 1,1'-Biphenyl, 4-ethoxy-2,3-difluoro-4'-(trans-4-propylcyclohexyl)-, mixt. with 4-(3-butenyl)-4'-methyl-1,1'-biphenyl, 1-butoxy-2,3-difluoro-4-(trans-4-pentylcyclohexyl)benzene, 1-butoxy-2,3-difluoro-4-(trans-4-propylcyclohexyl)benzene, 1-[(trans,trans)-4'-ethenyl[1,1'-bicyclohexyl]-4-yl]-4-methylbenzene, 1-ethoxy-2,3-difluoro-4-(trans-4-pentylcyclohexyl)benzene, 4-ethoxy-4'-(trans-4-ethylcyclohexyl)-2,3-difluoro-1,1'-biphenyl, 4-ethyl-4'-(trans-4-propylcyclohexyl)-1,1'-biphenyl and (trans,trans)-4-(1E)-1-propenyl-4'-propyl-1,1'-bicyclohexyl (9CI) (CA INDEX NAME)

CM 1

CRN 323178-01-4

CMF C22 H26 F2 O

Relative stereochemistry.



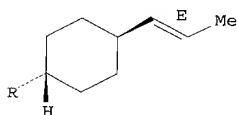
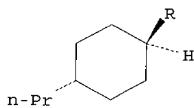
CM 2

CRN 279246-65-0

CMF C18 H32

Relative stereochemistry.

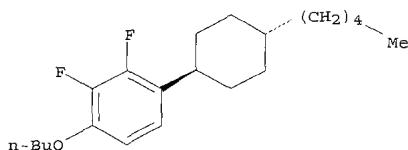
Double bond geometry as shown.



CM 3

CRN 263017-37-4
CMF C21 H32 F2 O

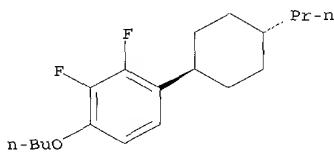
Relative stereochemistry.



CM 4

CRN 208709-55-1
CMF C19 H28 F2 O

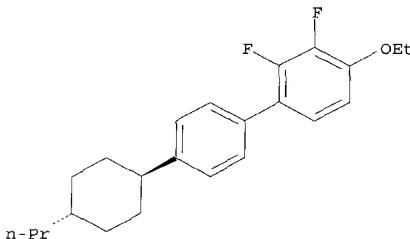
Relative stereochemistry.



CM 5

CRN 189750-98-9
CMF C23 H28 F2 O

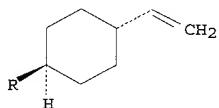
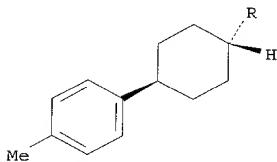
Relative stereochemistry.



CM 6

CRN 155041-85-3
CMF C21 H30

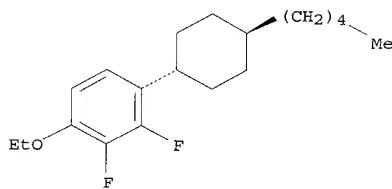
Relative stereochemistry.



CM 7

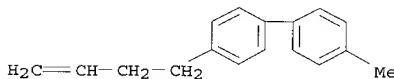
CRN 124729-02-8
CMF C19 H28 F2 O

Relative stereochemistry.



CM 8

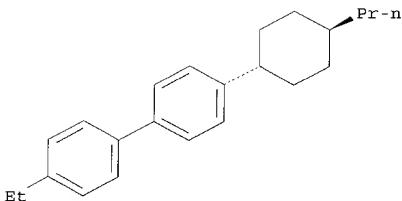
CRN 117713-14-1
CMF C17 H18



CM 9

CRN 84540-37-4
CMF C23 H30

Relative stereochemistry.



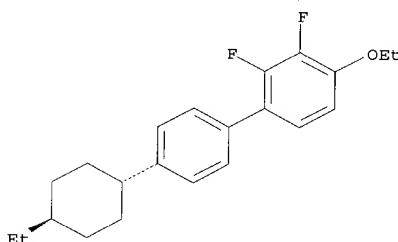
RN 497172-22-2 CAPLUS

CN 1,1'-Biphenyl, 4-ethoxy-2,3-difluoro-4'-pentyl-, mixt. with
 4-(3-butenyi)-4'-methyl-1,1'-biphenyl, 1-[(trans,trans)-4'-ethenyl[1,1'-bicyclohexyl]-4-yl]-4-methylbenzene, (trans,trans)-4-ethenyl-4'-pentyl-1,1'-bicyclohexyl, 4-ethoxy-2,3-difluoro-4'-propyl-1,1'-biphenyl,
 4-ethoxy-2,3-difluoro-4'-(trans-4-propylcyclohexyl)-1,1'-biphenyl,
 4-ethoxy-4'-(trans-4-ethylcyclohexyl)-2,3-difluoro-1,1'-biphenyl,
 4-ethyl-4'-(trans-4-propylcyclohexyl)-1,1'-biphenyl and
 (trans,trans)-4-(1E)-1-propenyl-4'-propyl-1,1'-bicyclohexyl (9CI) (CA INDEX NAME)

CM 1

CRN 323178-01-4
 CMF C22 H26 F2 O

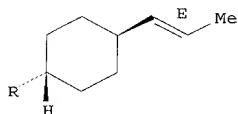
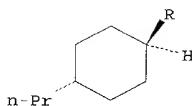
Relative stereochemistry.



CM 2

CRN 279246-65-0
 CMF C18 H32

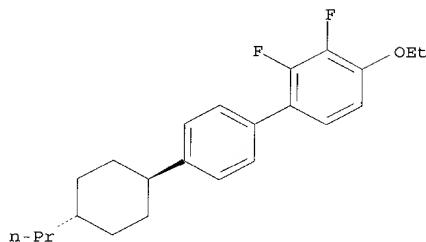
Relative stereochemistry.
 Double bond geometry as shown.



CM 3

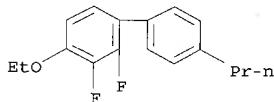
CRN 189750-98-9
CMF C23 H28 F2 O

Relative stereochemistry.



CM 4

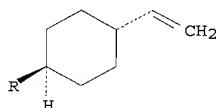
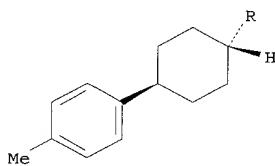
CRN 157248-24-3
CMF C17 H18 F2 O



CM 5

CRN 155041-85-3
CMF C21 H30

Relative stereochemistry.

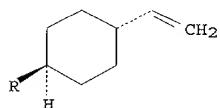
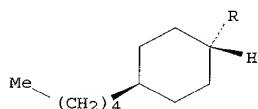


CM 6

CRN 129738-34-7

CMF C19 H34

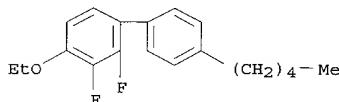
Relative stereochemistry.



CM 7

CRN 122412-08-2

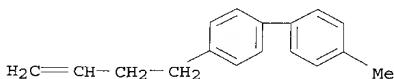
CMF C19 H22 F2 O



CM 8

CRN 117713-14-1

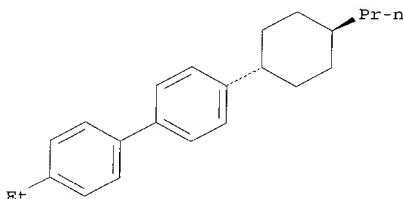
CMF C17 H18



CM 9

CRN 84540-37-4
CMF C23 H30

Relative stereochemistry.



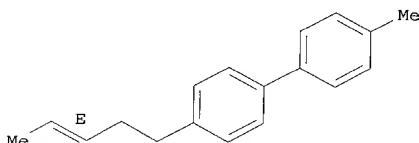
RN 497172-23-3 CAPLUS

CN 1,1'-Biphenyl, 4-ethoxy-2,3-difluoro-4'-(trans-4-propylcyclohexyl)-, mixt.
with 1-butoxy-2,3-difluoro-4-(trans-4-pentylcyclohexyl)benzene,
1-butoxy-2,3-difluoro-4-(trans-4-propylcyclohexyl)benzene,
1-[(trans,trans)-4'-ethenyl[1,1'-bicyclohexyl]-4-yl]-4-methylbenzene,
1-ethoxy-2,3-difluoro-4-(trans-4-pentylcyclohexyl)benzene,
4-ethoxy-4'-(trans-4-ethylcyclohexyl)-2,3-difluoro-1,1'-biphenyl,
4-ethyl-4'-(trans-4-propylcyclohexyl)-1,1'-biphenyl, 4-methyl-4'-(3E)-3-
pentenyl-1,1'-biphenyl and (trans,trans)-4-(1E)-1-propenyl-4'-propyl-1,1'-
bicyclohexyl (9CI) (CA INDEX NAME)

CM 1

CRN 478385-88-5
CMF C18 H20

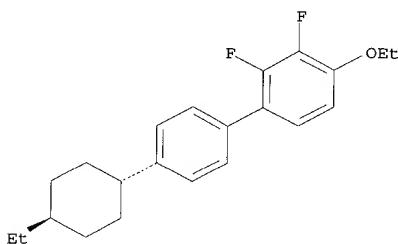
Double bond geometry as shown.



CM 2

CRN 323178-01-4
CMF C22 H26 F2 O

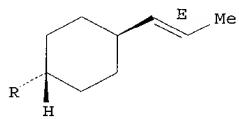
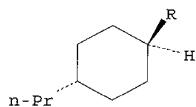
Relative stereochemistry.



CM 3

CRN 279246-65-0
CMF C18 H32

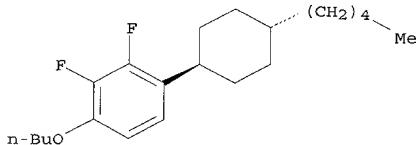
Relative stereochemistry.
Double bond geometry as shown.



CM 4

CRN 263017-37-4
CMF C21 H32 F2 O

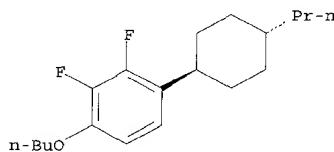
Relative stereochemistry.



CM 5

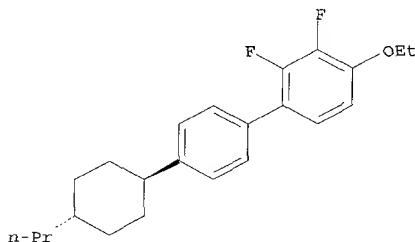
CRN 208709-55-1
CMF C19 H28 F2 O

Relative stereochemistry.



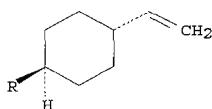
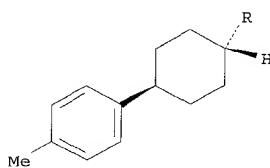
CRN 189750-98-9
CMF C23 H28 F2 O

Relative stereochemistry.



CRN 155041-85-3
CMF C21 H30

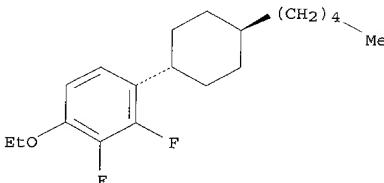
Relative stereochemistry.



CM 8

CRN 124729-02-8
CMF C19 H28 F2 O

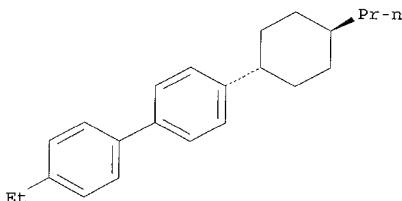
Relative stereochemistry.



CM 9

CRN 84540-37-4
CMF C23 H30

Relative stereochemistry.



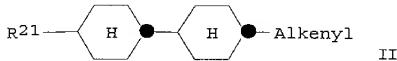
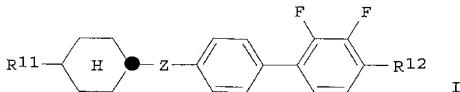
L7 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2003 ACS on STN
AN 2001:760068 CAPLUS
DN 135:296297
ED Entered STN: 19 Oct 2001
TI Liquid crystal mixture with negative dielectric anisotropy for liquid crystal display
IN Klasen, Melanie; Weller, Clarissa; Tarumi, Kazuaki; Bremer, Matthias
PA Merck Patent G.m.b.H., Germany
SO Eur. Pat. Appl., 28 pp.
CODEN: EPXXDW
DT Patent
LA German
IC ICM C09K019-30
ICS C09K019-44
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 75
FAN.CNT 1
PATENT NO. KIND DATE APPLICATION NO. DATE

PI EP 1146104 A2 20011017 EP 2001-107879 20010410
EP 1146104 A3 20020130
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,

This application

IE, SI, LT, LV, FI, RO
DE 10112955 A1 20011122
US 2002014613 A1 20020207
JP 2001354967 A2 20011225
PRAI DE 2000-10018899 A 20000414
OS MARPAT 135:296297
GI

DE 2001-10112955 20010317
US 2001-833743 20010413
JP 2001-116758 20010416



AB The invention relates to a liq. crystal mixt. based on a mixt. of polar compds. with neg. dielec. anisotropy, wherein the liq. crystal mixt. contains at least one compd. represented by I (R11, R12 = C₁toreq.15-alkyl, alkenyl; Z = -C₂H₄-, -CH:CH-, -CF₂O-, -OCCF₂-, single bond) and at least one compd. represented by II (R21 = C₁toreq.15-alkyl, alkenyl; Alkenyl = linear C₂-6-alkenyl). The liq. crystal mixt. is esp. suitable for ECB (elec. controlled birefringence) and IPS (in-plane switching) type liq. crystal displays.

ST nematic liq crystal mixt neg dielec anisotropy; liq crystal display ECB
IPS liq crystal mixt

IT Liquid crystal displays
(liq. crystal mixt. with neg. dielec. anisotropy for liq. crystal display)

IT Liquid crystals
(nematic; liq. crystal mixt. with neg. dielec. anisotropy for liq. crystal display)

IT 80944-44-1 81936-32-5 84540-37-4 87941-72-8 92263-41-7
123560-48-5 123560-54-3 124729-02-8 124770-58-7 129738-34-7
129738-42-7 154346-21-1 155041-85-3 174350-06-2 189750-98-9
197012-45-6 208709-55-1 263017-37-4 279246-65-0 321395-36-2
323178-01-4 323178-05-8 362053-47-2 362053-60-9 362053-68-7
364765-41-3 364765-42-4 364765-43-5
364765-44-6 364765-48-0 364765-49-1 364765-50-4
RL: TEM (Technical or engineered material use); USES (Uses)
(liq. crystal mixt. with neg. dielec. anisotropy for liq. crystal display)

IT 364765-41-3 364765-42-4 364765-43-5
364765-48-0
RL: TEM (Technical or engineered material use); USES (Uses)
(liq. crystal mixt. with neg. dielec. anisotropy for liq. crystal display)

RN 364765-41-3 CAPLUS

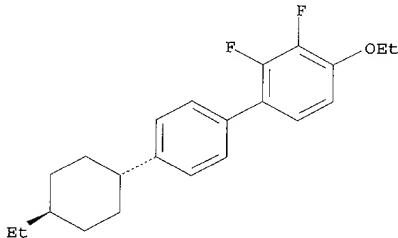
CN 1,1'-Biphenyl, 4-ethoxy-2,3-difluoro-4'-(trans-4-propylcyclohexyl)-, mixt. with 1-butoxy-2,3-difluoro-4-(trans-4-pentylcyclohexyl)benzene,
1-butoxy-2,3-difluoro-4-(trans-4-propylcyclohexyl)benzene,
1-[(trans,trans)-4'-ethenyl[1,1'-bicyclohexyl]-4-yl]-4-methylbenzene,
(trans,trans)-4-ethenyl-4'-pentyl-1,1'-bicyclohexyl, 4-ethoxy-4'-(trans-4-ethylcyclohexyl)-2,3-difluoro-1,1'-biphenyl, 4-ethyl-4'-(trans-4-propylcyclohexyl)-1,1'-biphenyl and (trans,trans)-4-(1E)-1-propenyl-4'-

propyl-1,1'-bicyclohexyl (9CI) (CA INDEX NAME)

CM 1

CRN 323178-01-4
CMF C22 H26 F2 O

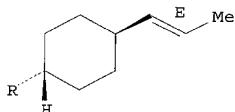
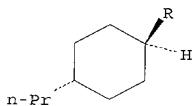
Relative stereochemistry.



CM 2

CRN 279246-65-0
CMF C18 H32

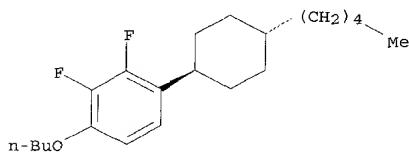
Relative stereochemistry.
Double bond geometry as shown.



CM 3

CRN 263017-37-4
CMF C21 H32 F2 O

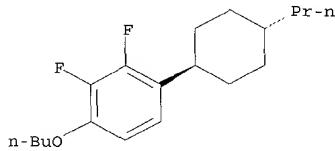
Relative stereochemistry.



CM 4

CRN 208709-55-1
CMF C19 H28 F2 O

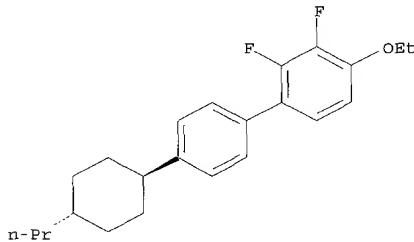
Relative stereochemistry.



CM 5

CRN 189750-98-9
CMF C23 H28 F2 O

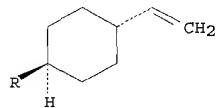
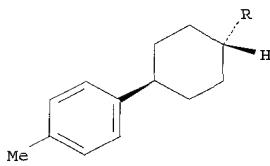
Relative stereochemistry.



CM 6

CRN 155041-85-3
CMF C21 H30

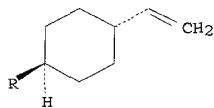
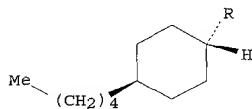
Relative stereochemistry.



CM 7

CRN 129738-34-7
CMF C19 H34

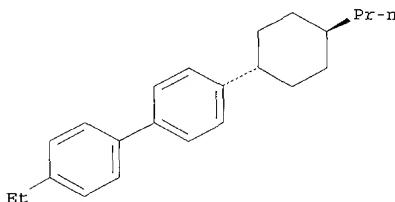
Relative stereochemistry.



CM 8

CRN 84540-37-4
CMF C23 H30

Relative stereochemistry.



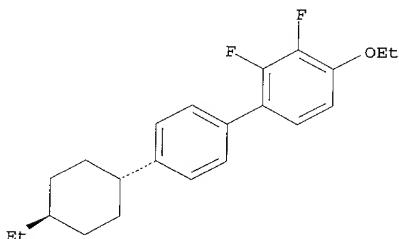
RN 364765-42-4 CAPLUS

CN 1,1'-Biphenyl, 4-ethoxy-4'-(trans-4-ethylcyclohexyl)-2,3-difluoro-, mixt. with 1-butoxy-2,3-difluoro-4-(trans-4-pentylcyclohexyl)benzene, 1-butoxy-2,3-difluoro-4-(trans-4-propylcyclohexyl)benzene, 1-ethoxy-2,3-difluoro-4-[(trans,trans)-4'-propyl[1,1'-bicyclohexyl]-4-yl]benzene, 4-ethoxy-2,3-difluoro-4'-(trans-4-propylcyclohexyl)-1,1'-biphenyl, (trans,trans)-4-ethenyl-4'-pentyl-1,1'-biphenyl, (trans,trans)-4-pentyl-4'-propyl-1,1'-biphenyl and (trans,trans)-4-(1E)-1-propenyl-4'-propyl-1,1'-bicyclohexyl (9CI) (CA INDEX NAME)

CM 1

CRN 323178-01-4
CMF C22 H26 F2 O

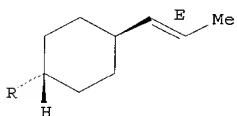
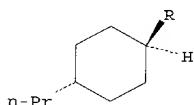
Relative stereochemistry.



CM 2

CRN 279246-65-0
CMF C18 H32

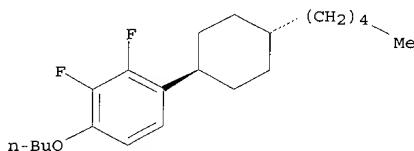
Relative stereochemistry.
Double bond geometry as shown.



CM 3

CRN 263017-37-4
CMF C21 H32 F2 O

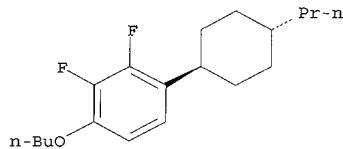
Relative stereochemistry.



CM 4

CRN 208709-55-1
CMF C19 H28 F2 O

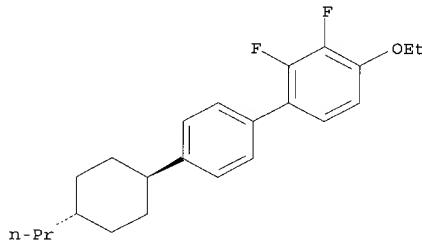
Relative stereochemistry.



CM 5

CRN 189750-98-9
CMF C23 H28 F2 O

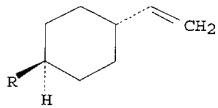
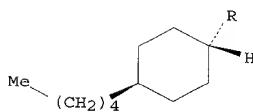
Relative stereochemistry.



CM 6

CRN 129738-34-7
CMF C19 H34

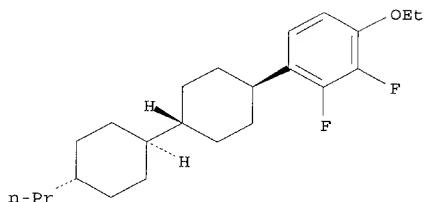
Relative stereochemistry.



CM 7

CRN 123560-48-5
CMF C23 H34 P2 O

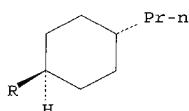
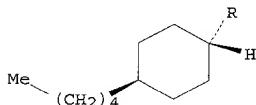
Relative stereochemistry.



CM 8

CRN 92263-41-7
CMF C20 H38

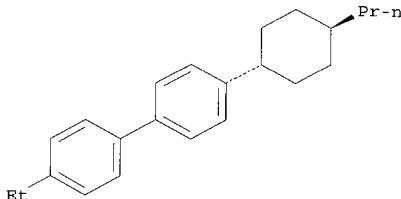
Relative stereochemistry.



CM 9

CRN 84540-37-4
CMF C23 H30

Relative stereochemistry.

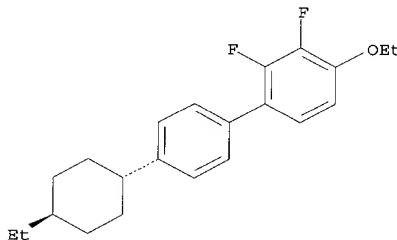


RN 364765-43-5 CAPLUS
CN 1,1'-Biphenyl, 4-ethoxy-4'-(trans-4-ethylcyclohexyl)-2,3-difluoro-, mixt.
with 1-butoxy-2,3-difluoro-4-(trans-4-pentylcyclohexyl)benzene,
1-butoxy-2,3-difluoro-4-(trans-4-propylcyclohexyl)benzene,
1-ethoxy-2,3-difluoro-4-(trans-4-pentylcyclohexyl)benzene,
1-ethoxy-2,3-difluoro-4-[(trans,trans)-4'-propyl[1,1'-bicyclohexyl]-4-yl]benzene,
1-ethoxy-4-[(trans,trans)-4'-propyl[1,1'-bicyclohexyl]-4-yl]benzene, 4-ethyl-4'-(trans-4-propylcyclohexyl)-1,1'-biphenyl,
(trans,trans)-4-pentyl-4'-propyl-1,1'-bicyclohexyl and
(trans,trans)-4-(1E)-1-propenyl-4'-propyl-1,1'-bicyclohexyl (9CI) (CA
INDEX NAME)

CM 1

CRN 323178-01-4
CMF C22 H26 F2 O

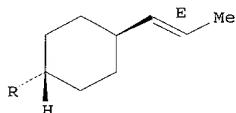
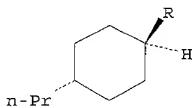
Relative stereochemistry.



CM 2

CRN 279246-65-0
CMF C18 H32

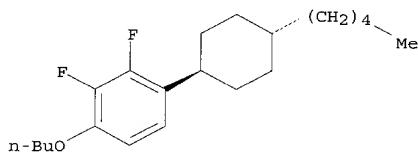
Relative stereochemistry.
Double bond geometry as shown.



CM 3

CRN 263017-37-4
CMF C21 H32 F2 O

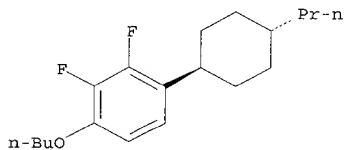
Relative stereochemistry.



CM 4

CRN 208709-55-1
CMF C19 H28 F2 O

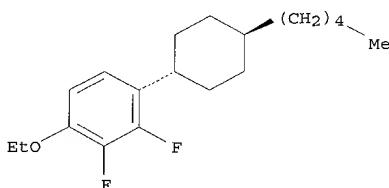
Relative stereochemistry.



CM 5

CRN 124729-02-8
CMF C19 H28 F2 O

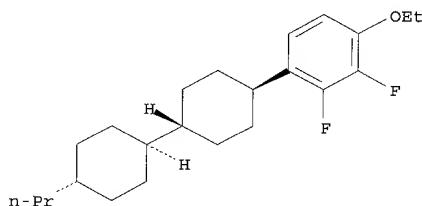
Relative stereochemistry.



CM 6

CRN 123560-48-5
CMF C23 H34 F2 O

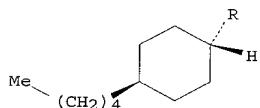
Relative stereochemistry.



CM 7

CRN 92263-41-7
CMF C20 H38

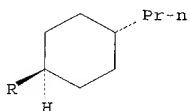
Relative stereochemistry.

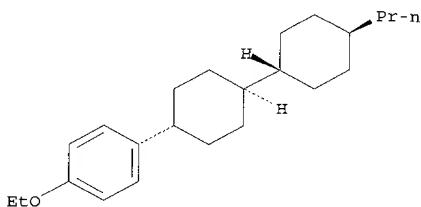


CM 8

CRN 84656-78-0
CMF C23 H36 O

Relative stereochemistry.

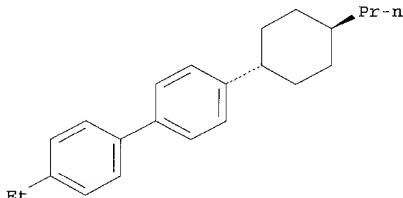




CM 9

CRN 84540-37-4
CMF C23 H30

Relative stereochemistry.

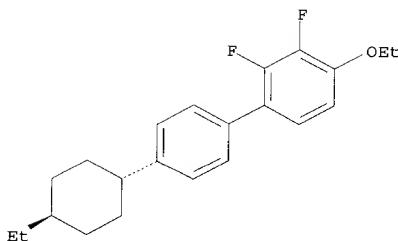


RN 364765-48-0 CAPLUS
CN 1,1'-Biphenyl, 4-ethoxy-2,3-difluoro-4'-(trans-4-propylcyclohexyl)-, mixt. with 1-[(trans,trans)-4-(3-butenyl)[1,1'-bicyclohexyl]-4-yl]-4-methylbenzene, 1-butoxy-2,3-difluoro-4-(trans-4-pentylcyclohexyl)benzene, 1-butoxy-2,3-difluoro-4-(trans-4-propylcyclohexyl)benzene, (trans,trans)-4-ethenyl-4'-pentyl-1,1'-bicyclohexyl, 1-ethoxy-2,3-difluoro-4-[(trans,trans)-4'-propyl[1,1'-bicyclohexyl]-4-yl]benzene, 4-ethoxy-4'-(trans-4-ethylcyclohexyl)-2,3-difluoro-1,1'-biphenyl, (trans,trans)-4-pentyl-4'-propyl-1,1'-bicyclohexyl and (trans,trans)-4-(1E)-1-propenyl-4'-propyl-1,1'-bicyclohexyl (9CI) (CA INDEX NAME)

CM 1

CRN 323178-01-4
CMF C22 H26 F2 O

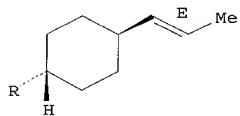
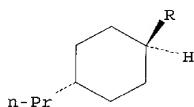
Relative stereochemistry.



CM 2

CRN 279246-65-0
CMF C18 H32

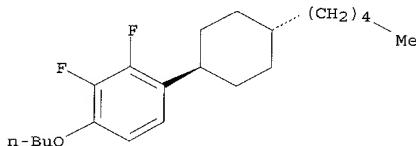
Relative stereochemistry.
Double bond geometry as shown.



CM 3

CRN 263017-37-4
CMF C21 H32 F2 O

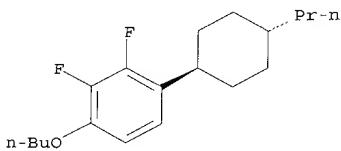
Relative stereochemistry.



CM 4

CRN 208709-55-1
CMF C19 H28 F2 O

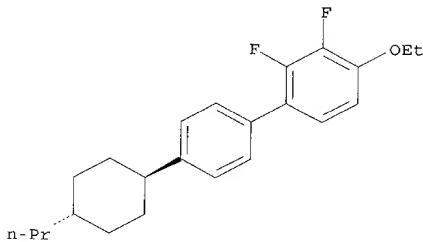
Relative stereochemistry.



CM 5

CRN 189750-98-9
CMF C23 H28 F2 O

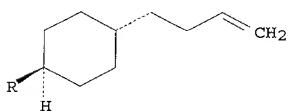
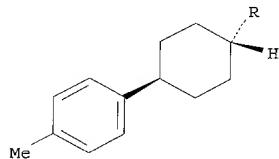
Relative stereochemistry.



CM 6

CRN 129738-42-7
CMF C23 H34

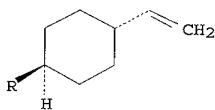
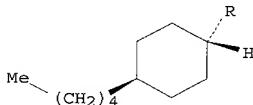
Relative stereochemistry.



CM 7

CRN 129738-34-7
CMF C19 H34

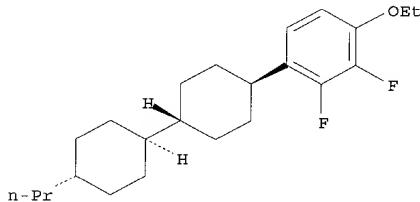
Relative stereochemistry.



CM 8

CRN 123560-48-5
CMF C23 H34 F2 O

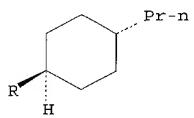
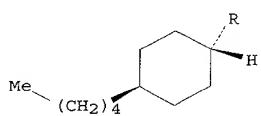
Relative stereochemistry.



CM 9

CRN 92263-41-7
CMF C20 H38

Relative stereochemistry.



FILE 'REGISTRY' ENTERED AT 19:22:18 ON 15 DEC 2003

L1 STRUCTURE UPLOADED
L2 STRUCTURE UPLOADED
L3 0 S L1 AND L2
L4 17 S L1
L5 6 S L2
L6 7 S L1 AND L2 FUL

FILE 'CAPLUS' ENTERED AT 19:23:35 ON 15 DEC 2003

L7 2 S L6